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23. An isolated, synthetic, substantially pure, or recombinant polynucleotide comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 21, or the complement of said nucleic acid sequence.

24. The polynucleotide of claim 23, comprising a promoter sequence operably linked to the sequence that encodes the protein, variant or fragment.

25. A isolated cell comprising the recombinant polynucleotide of claim 23.

26. The cell of claim 25 that is a eukaryotic cell.

27. A method of preparing recombinant telomerase comprising contacting the protein, variant or fragment of claim 21 with a telomerase RNA component under conditions that they associate to form a telomerase enzyme capable of catalyzing the addition of nucleotides to a telomerase substrate.

28. A method of increasing the proliferative capacity of a cell, comprising expressing in the cell a polynucleotide according to claim 23.

29. A synthetic or recombinant telomerase reverse transcriptase protein, or a variant thereof, or a fragment thereof, wherein the protein, variant or fragment contains a sequence that is at least 90% identical to SEQ. ID NO:2, and has telomerase catalytic activity when complexed with a telomerase RNA.

30. A composition comprising the protein, variant or fragment of claim 29, and further comprising an RNA, wherein the protein, variant or fragment and the RNA form a telomerase ribonucleic acid complex.

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31. An isolated, synthetic, substantially pure, or recombinant polynucleotide comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 29, or the complement of said nucleic acid sequence.

32. The polynucleotide of claim 31, comprising a promoter sequence operably linked to the sequence that encodes the protein, variant or fragment.

33. A isolated cell comprising the recombinant polynucleotide of claim 31.

34. The cell of claim 33 that is a eukaryotic cell.

35. A method of preparing recombinant telomerase comprising contacting the protein, variant or fragment of claim 29 with a telomerase RNA component under conditions that they associate to form a telomerase enzyme capable of catalyzing the addition of nucleotides to a telomerase substrate.

36. A method of increasing the proliferative capacity of a cell, comprising expressing in the cell a polynucleotide according to claim 31.

37. A synthetic or recombinant telomerase reverse transcriptase protein, or a variant thereof, or a fragment thereof, wherein the protein, variant or fragment contains a sequence that is at least 80% identical to 500 contiguous amino acids in SEQ. ID NO:2, and has reverse transcriptase activity when complexed with a telomerase RNA.

38. A composition comprising the protein, variant or fragment of claim 37, and further comprising an RNA, wherein the protein, variant or fragment and the RNA form a telomerase ribonucleic acid complex.

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39. An isolated, synthetic, substantially pure, or recombinant polynucleotide comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 37, or the complement of said nucleic acid sequence.

40. The polynucleotide of claim 39, comprising a promoter sequence operably linked to the sequence that encodes the protein, variant or fragment.

41. A isolated cell comprising the recombinant polynucleotide of claim 39.

42. The cell of claim 41 that is a eukaryotic cell.

43. A method of preparing recombinant telomerase comprising contacting the protein, variant or fragment of claim 37 with a telomerase RNA component under conditions that they associate to form a telomerase enzyme capable of catalyzing the addition of nucleotides to a telomerase substrate.

44. A method of increasing the proliferative capacity of a cell, comprising expressing in the cell a polynucleotide according to claim 39.

45. The protein, variant, or fragment of claim 37, wherein the protein, variant or fragment contains a sequence that is at least 95% identical to 100 contiguous amino acids in SEQ. ID NO:2.

46. The protein, variant, or fragment of claim 23, wherein the protein, variant or fragment contains a sequence that is at least 98% identical to 100 contiguous amino acids in SEQ. ID NO:2.

47. The protein, variant, or fragment of claim 37, wherein the protein, variant or fragment contains a sequence that is at least 95% identical to 500 contiguous amino acids in SEQ. ID NO:2.

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48. The protein, variant, or fragment of claim 37, wherein the protein, variant or fragment contains a sequence that is at least 98% identical to 500 contiguous amino acids in SEQ. ID NO:2.

49. The polynucleotide of claim 23, comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 45.

50. The polynucleotide of claim 23, comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 46.

51. The polynucleotide of claim 23, comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 47.

52. The polynucleotide of claim 23, comprising a nucleic acid sequence that encodes the protein, variant or fragment of claim 48. --

REMARKS

With entry of this Preliminary Amendment, claims 1-20 have been canceled without prejudice, and new claims 21-52 have been added. Substitution of the new claims is made voluntarily by the owners of this invention, not for reasons of patentability, but to protect particular embodiments of current commercial interest. Applicants reserve the right to introduce claims to subject matter previously claimed or otherwise disclosed in the specification in this or any related application.

No new matter has been introduced by the new claims. Support for the new claims is provided throughout the subject specification. For example, support for independent claims 21, 29, 37, and dependent claims 45-48 can be found at page 5, lines 2-14; page 47, lines 19-20; and page 191, lines 13-18. Additional support for dependent claims 22, 30, and 38 is provided in the specification, e.g., at page 5, lines 15-18. Dependent claims 23, 31, 39, and 49-52 have additional support in the specification, e.g., at page 5, lines 24-30. Additional support

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for dependent claims 24, 32, and 40 can be found in the specification, e.g., at page 6, lines 5-9. Dependent claims 25, 26, 33, 34, 41, and 42 have additional support in the specification, e.g., at page 7, lines 2-10. The specification provides additional support for claims 27, 35, and 43, e.g., at page 6, lines 20-24. Additional support for dependent claims 28, 36, and 44 is provided in the specification, e.g., at page 10, lines 16-20.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400 x 5209.

Respectfully submitted,



Hugh Wang
Reg. No. 47,163

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: (650) 326-2400
Fax: (650) 326-2422
PA 3188095 v1